Oregon
Theodore Kulongoski, Governor

Department of Environmental Quality
Northwest Region Portland Office
2020 SW 4th Avenue, Suite 400
Portland, OR 97201-4987
(503) 229-5263
FAX (503) 229-6945
TTY (503) 229-5471

August 15, 2007 *Also Sent Via E-mail*

Mr. Robert J. Wyatt
Northwest Natural Gas Company
220 N.W. Second Avenue
Portland, OR 97209

Re: Source Control Data Gaps Work Plan
Northwest Natural Gas Company Site
Portland, Oregon
ECSI No. 84

Dear Mr. Wyatt:

The Oregon Department of Environmental Quality (DEQ) has reviewed the "Source Control Data Gaps Work Plan, NW Natural Gasco Site, 7900 NW St. Helens Road, Portland, Oregon" dated July 2007 (Data Gaps Work Plan). Anchor Environmental, LLC (Anchor) and Hahn and Associates, Inc. (Hahn) jointly prepared the Data Gaps Work Plan on behalf of the Northwest Natural Gas Company (NWNG).

DEQ has determined that source control is required along the entire shoreline of NWNG-owned property (NWNG Property) and the northern portion of the property owned by the Siltronic Corporation (Siltronic Property). The portion of the shoreline identified as the highest priority for source control (Segment 1) extends from downstream of the "Tar Body Removal Area" (TBRA) on the NWNG Property, to upstream of the "lowland effluent overflow pond area" (EPOA) on the Siltronic Property. Segment 1 coincides with the:

- Heaviest impacts associated with NWNG's former manufactured gas plant (MGP) operations, including dense non-aqueous phase liquid (DNAPL) and contaminated groundwater identified near the river; and
- The portion of the Siltronic Property where groundwater contamination caused by Siltronic has commingled with MGP-related groundwater contamination and DNAPL.

The segment of NWNG's shoreline between the TBRA and NWNG's downstream property line with US Moorings (Segment 2) is considered a high priority for source control, primarily due to the presence and concentrations of cyanide in soil and groundwater.

DEQ is requiring that source control measures be implemented along segments 1 and 2 to prevent migration of DNAPL, contaminated groundwater, and impacted erodible soils to the Willamette River. A third shoreline segment (Segment 3) extends from upstream of the EPOA to the upstream Siltronic Property line. A source control evaluation of this segment is ongoing.

In a letter dated May 2, 2007, DEQ commented on the Siltronic Property RI Proposal[1] submitted by NWNG. DEQ's letter: 1) communicated our expectation that NWNG would perform field work supportive of source control measures evaluations for shoreline segments 1 and 2 concurrently with the

[1] Hahn and Associates, Inc., 2007, "Remedial Investigation Proposal, Historical Manufactured Gas Plant Activities – Siltronic Corporation Property, 7200 NW Front Avenue, Portland, Oregon," November 17, a proposal for a remedial investigation prepared for the Northwest Natural Gas Company.

Siltronic Property RI; and 2) identified the general source control data needs for both shoreline segments. The general data needs for segments 1 and 2 are summarized below.

- Segment 1 - Evaluate the distribution and mobility of DNAPL using surface and subsurface geophysical methods. DEQ considers determining the vertical extent of DNAPL in the alluvial water-bearing zone (WBZ) a primary objective of this work.
- Segment 2 – Evaluate the nature and extent of contamination, particularly cyanide, in the surficial fill WBZ and at multiple depth intervals within the alluvial WBZ.

The Data Gaps Work Plan presents NWNG's approach for addressing the general source control data needs listed above. In addition, the document provides a proposal for evaluating the storm water pathway on the NWNG Property. NWNG identified the storm water pathway as a data gap in the Source Control Data Gaps Evaluation[2].

The Data Gaps Work Plan is organized into six sections. Sections 2 through 5 present scopes of work for evaluating the storm water pathway (Section 2), Segment 2 groundwater (Section 3), and the nature and extent of DNAPL (sections 4 and 5) on the NWNG Property. As discussed in Section 3.1 of the work plan, NWNG previously submitted Section 3 as the Segment 2 Monitoring Well Proposal[3] to meet the scheduling needs of the source control measures evaluations that will be included in the "DNAPL/groundwater" focused feasibility study. Subsequent to NWNG revising the document per DEQ's comments, DEQ approved the proposal via a letter dated June 25, 2007. Drilling, installation, and sampling of the new Segment 2 monitoring wells were completed in July 2007.

This letter provides DEQ's approval of sections 4 and 5 of the Data Gaps Work Plan with comments to sections 4.3 and 5.2. DEQ does not approve Section 2 and will expect this portion of the work plan to be revised consistent with the comments provided below.

Regarding Section 2, storm water from the southern portion of the NWNG Property discharges to Doane Creek, which ultimately discharges to the Willamette River via City of Portland (City) Outfall OF-22C. As such, DEQ provided the City a copy of the Data Gaps Work Plan for its files and review. A copy of the City's letter commenting on Section 2 is attached. Although the DEQ and the City share many comments, NWNG should closely review the attachment to ensure that both agencies needs are addressed by the revised storm water pathway evaluation.

GENERAL COMMENTS

Section 2 of the Data Gaps Work Plan provides the scope of work for conducting storm water system sediment sampling and storm water sampling at the NWNG Property. Before Section 2 can be approved, additional information is needed to determine whether representative locations have been selected for sediment sampling. To make this determination DEQ expects Section 2 to be revised as follows.

- It appears that the site has been organized into areas A through E based on operations, landuse, or by leasehold (see Figure 1) rather than by storm water drainage basin. If this is the case, figures should be provided that clearly show storm water drainage basin boundaries for the NWNG Property.

[2] Anchor Environmental, LLC, 2006, "Gasco Source Control Data Gaps Evaluation, NW Natural 'Gasco' Site", November, a report prepared on behalf of Northwest Natural Gas Company.
[3] Hahn and Associates, Inc., 2007, "Proposal for Segment 2 Shoreline Monitoring Wells, Gasco Site, Portland, Oregon," June 8, a scope of work prepared on behalf of the Northwest Natural Gas Company.

Additional boundary lines may also be needed to delineate storm water sub-basins within the larger drainage areas (e.g., southern portion of Area C).

- More detailed information is needed on the types of facilities and the associated operations/activities taking place on the site that could be potential sources of contaminants to the storm water system. If the sampling plan includes only a subset of catch basins, a justification must be provided that describes how these sampling locations are representative of all types of potential sources on the site.
- Directional arrows need to be added to selected figures (e.g., Figure 2) to indicate the direction of runoff on all portions of the site. This information is necessary to assess drainage patterns in the vicinity of each catch basin and/or infiltration area.
- The work plan should provide justification for the sumps and/or catch basins selected for the sediment sampling and analytical program.

Sections 2.3 and 2.4.1, and Table 1 of the work plan provide contradictory information as to what NWNG is proposing as the suite of analyses for storm water system sediment samples. For clarification, DEQ expects all sediment samples to be analyzed for the chemicals of interest (COI) for the Gasco Site[4], plus polychlorinated biphenyls (PCBs), phthalates, grain-size, and total organic carbon (TOC). If NWNG utilizes catch basin filter inserts at the Gasco Site, then sediment samples should be collected from above and below the insert for analysis. Based on the results of analyzing sediment samples, a storm water sampling and analytical program will be developed prior to the onset of seasonal precipitation consistent with the Joint Source Control Strategy[5] (JSCS).

DEQ has concluded that storm water leaving the Koppers Industrial, Inc. (KI) leasehold on the NWNG Property represents a source of COI (e.g., PAHs) to Doane Creek. As mentioned above, Doane Creek ultimately discharges to the Willamette River via OF-22C. Given this information, DEQ considers characterizing storm water discharges from KI to be an essential element of the NWNG Property storm water pathway evaluation. There are two catch basins located in the southern portion of the NWNG Property that: 1) receive storm water runoff from the KI leasehold and/or vicinity; 2) are separate from KI's storm water system; and 3) are the last storm water system components to contribute storm water to the Doane Creek culvert. These catch basins are not currently included in the sampling program. Based on the information summarized above, DEQ will require both catch basins to be included in the sediment sampling program for the storm water pathway evaluation.

The work plan does not mention dry weather flow in the storm water conveyances, or the potential for buried utilities to act as preferential pathways for shallow groundwater. These topics need to be discussed so they can be included or eliminated as considerations for the storm water pathway evaluation.

Lastly, the work plan should indicate that the reporting procedures laid out in DEQ's instructions for catch basin and storm water sampling will be followed. These documents can be found at "http://www.deq.state.or.us/lq/cu/nwr/PortlandHarbor/docs/InstructionsDevCatchBasinSamplingPlans.pdf" and

[4] Gasco Site COI include BTEX compounds (benzene, toluene, ethylbenzene, xylenes); polycyclic aromatic hydrocarbons, plus 2-methynapthalene, carbazole, and dibenzofuran; diesel-range and oil-range petroleum hydrocarbons; cyanide (total, amenable, and free forms), and metals (i.e., aluminum, antimony, arsenic, cadmium, chromium, copper, iron, lead, magnesium, manganese, mercury, nickel, selenium, silver, thallium, vanadium, and zinc.).

[5] EPA and DEQ, 2005, "Portland Harbor Joint Source Control Strategy – Final," December (note Table 3-1 revised July 16, 2007), a guidance document prepared jointly by the US Environmental Protection Agency and Oregon Department of Environmental Quality.

"http://www.deq.state.or.us/lq/cu/nwr/PortlandHarbor/docs/InstructionsDevStormwaterSamplingPlans.pdf."

SPECFIC COMMENTS

Section 1. NWNG implies in the last paragraph that upon completion of the work described in the Data Gaps Work Plan, "…then source control data gaps will be filled for the site and source control evaluation and designs can proceed and be completed for the project." For clarification, although not discussed in the Data Gaps Work Plan and not identified as a data gap in the Source Control Data Gaps Evaluation, DEQ has informed NWNG that erodible soils in segments 1 and 2: 1) are a high priority for source control; and 2) will be incorporated into, and addressed during DNAPL/groundwater source control measures planning, design, and implementation.

Section 2.1. NWNG's storm water conveyance system maintenance program and schedule should be described in this section of the work plan.

Section 2.3.1. As discussed under General Comments, DEQ recommends NWNG revise storm water system sampling locations to focus efforts on catch basins or sumps that are: 1) representative of the various site operations/activities occurring at the Gasco Site; and 2) components of conveyances that route storm water to Doane Creek and/or the Willamette River. In general, sediment sampling sites should be located as close as practicable to potential sources of contamination to the conveyance system(s). Sampling results are used to identify potential sources that may need to be controlled. Oil/water separators and sumps that are located further from potential sources are not ideal for sampling because sediments entering the storm water system may be intercepted and trapped prior to getting to further downstream locations. Storm water samples on the other hand are typically collected closer to the boundary of a drainage basin or outfall as these locations would better represent contaminant concentrations that are actually leaving the site via storm water.

DEQ's is providing feedback on NWNG's current proposed locations to assist in revising the scope of work. Our feedback should be considered preliminary because more information is needed before final decisions on sampling locations can be made.

- Area A (SS-4): DEQ needs more information on the direction and pattern of storm water flow and site activities before approving this location for sampling.
- Area B (SS-2): Can potentially be removed from the list of sampling locations as storm water discharges to sanitary sewer (i.e., not representative of storm water discharging to Willamette River).
- Area C
  - For the portion of Area C adjacent to the river on the southeast corner of the site, no sampling is needed because storm water does not discharge into the river.
  - For the portion of the area in the northwestern portion of the site, Figure 2 indicates there are four catch basins located southeast of the former Gasco office. These catch basins apparently drain into a linear section of storm water pipe which connects to the conveyance lines draining areas B and E, and ultimately discharging (untreated) at Outfall 107. Figures 1 through 3 should be reviewed and revised as appropriate (e.g., Area E should be expanded to include the four catch basins).
- Area D (SS-1): The sampling location for this area should be changed to obtain a more representative sample of sediments entering the storm water system. Additionally, DEQ will require additional information regarding the direction/pattern of storm water flow and site activities/operations for Area D to determine whether the catch basin should be sampled.

- Area E
  - Revise the boundary of the drainage basin to include the conveyance piping and four catch basins mentioned above. If a sample from this area is needed to represent activities occurring in this area, an approach to consider is to collect one sample from this lateral by compositing sediments from the four catch basins on that line.
  - Rather than sampling SS-3, alternative catch basin sampling locations should be considered if they provide more representative data regarding the different types of activity taking place in this area. More information on operations/activities and flow direction is needed to evaluation sampling options.

Section 2.3.2. NWNG should clarify whether there is any overland flow from the site directly to the river.

Section 2.4.1. For clarification, if insufficient sediment is available in any of the designated sampling locations to complete all of the laboratory analyses, analysis of site COI, PCBs, and phthalates should be prioritized over physical tests (e.g., grain-size, total solids, TOC).

Section 4.3. DEQ currently understands that "pre-field bench scale testing" of the TarGost® logging system has been completed. Based on the results of the bench-scale tests, NWNG is proceeding with field testing. Field testing will be initiated during the week beginning August 20th and will involve using the logging system at "Primary" pilot borings TG-1 through TG-5 on the NWNG Property and TG-6 through TG-9 on the Siltronic Property.

DEQ concurs with NWNG that the TarGost® logging system will be primarily used to evaluate the horizontal and vertical extent of DNAPL in the alluvial WBZ. DEQ is currently reviewing Siltronic RI Work Plan[6], and based on that document DEQ understands that the possible limitations of the TarGOST® logging system are related to conditions that are more likely to be encountered in the overlying fill unit. As such, DEQ recommends that NWNG drill pilot holes through the fill and initiate TarGost® logging in the uppermost portion of the alluvial unit (e.g., the silt unit). This approach will minimize the potential for experiencing equipment refusal and will allow logging to proceed more efficiently.

Section 5.2. DEQ disagrees with NWNG's assertion that the configuration and thickness of the silt unit is "…presently well understood and delineated based on a significant number of conventional soil boring methods." DEQ has previously informed NWNG that relying on conventional drilling methods limits interpretations and understandings of the depth and thickness of the silt unit across the NWNG and Siltronic properties, especially in areas where drilling has not been conducted. Ground-penetrating radar and earth resistivity geophysical methods represent alternative approaches to rapidly gathering this information over larger portions of both sites. Furthermore, DEQ considers NWNG's criteria for evaluating the usefulness of these methods to be overly restrictive. DEQ will consider the methods to be useful if the general shape of the top of the silt can be interpreted.

Tables 1 and 2. NWNG should be advised that DEQ updated Table 3-1 of the JSCS in July 2007 (see http://www.deq.state.or.us/lq/cu/nwr/PortlandHarbor/docs/JSCSFinalTable03_1.pdf). For example, the

[6] Hahn and Associates, Inc., 2007, "Remedial Investigation Workplan, Historical Manufactured Gas Plant Activities – Siltronic Corporation Property, 7200 NW Front Avenue, Portland, Oregon," July 27, a work plan prepared for the Northwest Natural Gas Company.

bioaccumulation screening level values for sediment now reflect the DEQ's 2007 guidance document on this subject.

Figure 2. This figure shows that treated water from basin B is discharged through Outfall 107; however the text in Section 2.3.2 and Figure 3 indicates that this water discharges to the sanitary sewer. The figure should be reviewed and revised as appropriate.

Figure 6. DEQ understands that NWNG has located five "Primary" pilot locations on the Gasco Site designated TG-1 through TG-5. Two other locations (TG-6 and TG-9) are shown on this figure, which DEQ understands to be located on the Siltronic Property. These borings are discussed in the Siltronic RI Work Plan.

NEXT STEPS

DEQ expects NWNG to revise and resubmit Section 2 of the Data Gaps Work Plan within a timeframe that allows sediment sample locations to be selected and approved, and sediment samples to be collected and analyzed so the storm water sampling parameter list can be finalized prior to the onset of seasonal precipitation.

Please don't hesitate to contact me if you have any questions regarding this letter.

Sincerely,

Dana Bayuk
Project Manager
Cleanup & Portland Harbor Section

Cc: Sandy Hart, NWNG
Patty Dost, Schwabe Williamson & Wyatt
Rob Ede, Hahn & Associates
John Edwards, Anchor Environmental
Carl Stivers, Anchor Environmental
Eric Blischke, EPA
Chip Humphries, EPA
Rene Fuentes, EPA
Kristine Koch, EPA
Sean Sheldrake, EPA
Dawn Sanders, BES
Linda Scheffler, BES
Henning Larsen, DEQ/SRS
Jim Anderson, DEQ/PHS
Matt McClincy, DEQ/PHS
ECSI No. 84 File

Attachments: City's August 3rd Comments Letter